

deoxyguaninecpG.txt

? e au=sato, y?

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E4	1	AU=SATO, YACHIO
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? e au=sato, yukio

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E23	102	AU=SATO, YUMI
E24	2	AU=SATO, YUMI F.
E25	26	AU=SATO, YUMIE

Enter PAGE for more

? s e3

S1 693 AU='SATO, YUKIO'

? s s1 and CpG

693 S1
127009 CPG
S2 14 S S1 AND CPG

? t s2/3,k/1-14

>>>W: KWIC option is not available in file(s): 399

2/3,k/1 (Item 1 from file: 98) Links

General Sci Abs

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03278771 H.w. Wilson Record Number: BGSI96028771

Immunostimulatory DNA sequences necessary for effective intradermal gene immunization.

Sato, Yukio

Roman, Mark; Tighe, Helen

Science (Science) v. 273 (July 19 '96) p. 352-4

Document Type: Feature Article

Special Features: bibl il ISSN: 0036-8075

Language: English

Country Of Publication: United States

Sato, Yukio

Abstract: ...the immunogenicity of plasmid DNA (pDNA) requires short immunostimulatory DNA sequences (ISS) that contain a CpG dinucleotide in a particular base context. Human monocytes transfected with pDNA or double-stranded oligonucleotides...

2/3,k/2 (Item 1 from file: 370) Links

Science

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00500536 (USE 9 FOR FULLTEXT)

Immunostimulatory DNA Sequences Necessary for Effective Intradermal Gene Immunization

Sato, Yukio; Roman, Mark; Tighe, Helen; Lee, Delphine; Corr, Maripat ; Nguyen, Minh-Duc; Silverman, Gregg J.; Lotz, Martin; Carson, Dennis A.; Raz, Eyal
Department of Medicine and The Sam and Rose Stein Institute for Research on Aging,
University of California, San Diego, 9500 Gilman Drive, La Jolla, CA 92093-0663,
USA.

Science Vol. 273 5273 pp. 352

Publication Date: 7-19-1996 (960719) Publication Year: 1996

Document Type: Journal ISSN: 0036-8075

Language: English

Section Heading: Reports

Word Count: 2127 (THIS IS THE FULLTEXT)

Sato, Yukio; Roman, Mark; Tighe, Helen; Lee, Delphine; Corr, Maripat ; Nguyen, Minh-Duc; Silverman, Gregg J...

Abstract:

...the immunogenicity of plasmid DNA (pDNA) requires short immunostimulatory DNA sequences (ISS) that contain a CpG dinucleotide in a particular base context. Human monocytes transfected with pDNA or double-stranded oligonucleotides...

Text:

...human peripheral lymphocytes and to enhance natural killer cell activity. These ISS include the following CpG-containing hexamers: 5 (prime) -GAGTC-3 (prime) , 5 (prime) -AG-CGCT-3 (prime) , and 5...

deoxyguaninecpG.txt

...in vitro (B9) . Recently, Krieg et al. studied the effects of single-stranded oligonucleotides with CpG motifs on murine B lymphocyte activation (B10) . They found that cytosine methylation or the elimination of the CpG from the oligonucleotide abolished the lymphocyte stimulatory effect. The activation capability was attributed to a series of CpG-containing motifs that generally follow the formula 5' (prime) -Pur Pur CG Pyr Pyr-3' (prime) . CpG-enriched oligonucleotides induced not only B cell proliferation, but also the secretion of IL-6...

2/3,K/3 (Item 1 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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149531193

CA: 149(24)531193g

JOURNAL

Breakthrough of immune self-tolerance to calreticulin induced by CpG-oligodeoxynucleotides as adjuvant

Author: Abe, Kazumichi; Ohira, Hiromasa; Kobayashi, Hiroko; Saito, Hironobu; Takahashi, Atsushi; Rai, Tsuyoshi; Kanno, Yukiko; Monoe, Kyoko; Watanabe, Hiroshi; Irisawa, Atsushi; Sato, Yukio

Location: Department of Internal Medicine II, Fukushima Medical University School of Medicine, Fukushima, Japan, 960-1295

Journal: Fukushima J. Med. Sci.

Date: 2007

Volume: 53 Number: 2 Pages: 95-108

CODEN: FJMSAU

ISSN: 0016-2590

Language: English

Publisher: Fukushima Society of Medical Science

2/3,K/4 (Item 2 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

CA SEARCH(R)

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145122331

CA: 145(7)122331s

JOURNAL

Effectiveness of intragastric immunization with protein and oligodeoxynucleotides containing a CpG motif for inducing a gastrointestinal mucosal immune response in mice

Author: Hikichi, Takuto; Kobayashi, Hiroko; Oyama, Hitoshi; Yamamoto, Go; Watanabe, Hiroshi; Irisawa, Atsushi; Obara, Katsutoshi; Sato, Yukio

Location: Department of Internal Medicine II, Fukushima Medical University School of Medicine, Fukushima, Japan, 960-1295

Journal: Fukushima J. Med. Sci.

Date: 2005

Volume: 51 Number: 1 Pages: 19-31

CODEN: FJMSAU

ISSN: 0016-2590

Language: English

Publisher: Fukushima Society of Medical Science

2/3,K/5 (Item 3 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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deoxyguaninecpg.txt
145101946 CA: 145(6)101946f JOURNAL
Role of CpG ODN in concanavalin A-induced hepatitis in mice
Author: Abe, Kazumichi; Ohira, Hiromasa; Kobayashi, Hiroko; Rai, Tsuyoshi; Saito, Hironobu; Takahashi, Atsushi; Sato, Yukio
Location: Department of Internal Medicine II, Fukushima Medical University School of Medicine, Fukushima, Japan, 960-1295
Journal: Fukushima J. Med. Sci.
Date: 2005
Volume: 51 Number: 1 Pages: 41-49
CODEN: FJMSAU
ISSN: 0016-2590
Language: English
Publisher: Fukushima Society of Medical Science

2/3,K/6 (Item 4 from file: 399) Links
Fulltext available through: STIC Full Text Retrieval Options
CA SEARCH(R)
(c) 2009 American Chemical Society. All rights reserved.

144388566 CA: 144(21)388566v JOURNAL
Synthetic oligodeoxynucleotides suppresses murine collagen induced arthritis via Toll-like receptor 9
Author: Kobayashi, Hiroko; Sato, Yukio
Location: The Second Department of Internal Medicine, School of Medicine, Fukushima Medical University, Fukushima, Japan, 960-1295
Journal: Rinsho Men'eki
Date: 2005
Volume: 44 Number: 3 Pages: 276-280
CODEN: RNMKAU
ISSN: 0386-9695
Language: Japanese
Publisher: Kagaku Hyoronsha

2/3,K/7 (Item 5 from file: 399) Links
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141388675 CA: 141(24)388675t PATENT
Guanine methylated oligo-DNA containing CpG motifs alleviates collagen-induced arthritis in mice, use as immunosuppressant
Inventor (Author): Sato, Yukio; Kobayashi, Hiroko
Location: Japan,
Assignee: Taisho Pharmaceutical Co. Ltd.
Patent: PCT International ; WO 200494448 A1 Date: 20041104
Application: WO 2004JP5935 (20040423) *JP 2003118999 (20030423)
Pages: 24 pp.
CODEN: PIXXD2
Language: Japanese
Patent Classifications:
Class: C07H-021/02A; C07H-021/04B; A61K-031/7115B; A61P-037/06B; A61P-019/02B; A61P-043/00B; A61P-029/00B; A61P-003/10B; A61P-025/00B; A61P-007/06B; A61P-021/04B; A61P-017/00B; A61P-001/04B; A61P-011/06B; A61P-037/08B; A61P-031/04B; A61P-009/10B; C12N-015/11B
Designated Countries: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; MZ; NA; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RU; SC; SD; SE; SG; SK; SL; SY; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA; ZM; ZW
Designated Regional: BW; GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LU; MC; NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN;

GQ; GW; ML; MR; NE; SN; TD; TG

2/3,K/8 (Item 6 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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139020716

CA: 139(2)20716e

JOURNAL

Future prospect of DNA vaccine

Author: Sato, Yukio; Kobayashi, Hiroko

Location: School of Medicine, Second Dep. of Internal Medicine, Fukushima

Prefectural Medical University, Japan,

Journal: Arerugi, Men'eki

Date: 2003

Volume: 10 Number: 3 Pages: 294-301

CODEN: ARMEFS

ISSN: 1344-6932

Language: Japanese

Publisher: Iyaku Janarusha

2/3,K/9 (Item 7 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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138203307

CA: 138(14)203307w

JOURNAL

Effect of hsp65 DNA vaccination carrying immunostimulatory DNA sequences (CpG motifs) against Mycobacterium leprae multiplication in mice

Author: Nomaguchi, Hiroko; Mukai, Tetsu; Takeshita, Fumihiko; Matsuoka, Masanori;

Maeda, Yumi; Aye, Tin Maung; Jahan, Nilufar; Yogi, Yasuko; Endo, Masumi; Sato,

Yukio; Makino, Masahiko

Location: Leprosy Research Center, National Institute of Infectious Diseases,

Higashimurayama, Tokyo, Japan,

Journal: Int. J. Lepr. Other Mycobact. Dis.

Date: 2002

Volume: 70 Number: 3 Pages: 182-190

CODEN: IJLEAG

ISSN: 0148-916X

Language: English

Publisher: Allen Press

2/3,K/10 (Item 8 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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138050341

CA: 138(5)50341a

JOURNAL

Discovery of immunostimulatory CpG-DNA and its application to tuberculosis vaccine development

Author: Yamamoto, Saburo; Yamamoto, Toshiko; Nojima, Yasuhiro; Umemori, Kiyoko;

Phalen, Susan; McMurray, David N.; Kuramoto, Etsuro; Iho, Sumiko; Takauji, Rumiko;

Sato, Yukio; Yamada, Takeshi; Ohara, Naoya; Matsumoto, Sohkiichi; Goto, Yoshitaka;

Matsuo, Kazuhiro; Tokunaga, Tohru

Location: National Institute of Infectious Diseases, Musashimurayama, Tokyo, Japan,

208-0011

Journal: Jpn. J. Infect. Dis.

Date: 2002

Volume: 55 Number: 2 Pages: 37-44

CODEN: JJIDFE

ISSN: 1344-6304

Language: English

Publisher: National Institute of Infectious Diseases

2/3,K/11 (Item 9 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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136133063

CA: 136(9)133063w

JOURNAL

Immunostimulatory DNA sequence

Author: Sato, Yukio; Kobayashi, Hiroko

Location: Department of Internal Medicine II, Fukushima Medical University School of Medicine, Fukushima, Japan, 960-1295

Journal: Kokyu

Date: 2001

Volume: 20 Number: 5 Pages: 464-469

CODEN: KOKUDH

ISSN: 0286-9314

Language: Japanese

Publisher: Respiration Research Foundation

2/3,K/12 (Item 10 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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134279449

CA: 134(20)279449g

JOURNAL

Unmethylated oligo-DNA containing CpG motifs aggravates collagen-induced arthritis in mice

Author: Miyata, Masayuki; Kobayashi, Hiroko; Sasajima, Tomomi; Sato, Yukio;

Kasukawa, Reiji

Location: Fukushima Medical University School of Medicine, Fukushima City, Japan, 960-1295

Journal: Arthritis Rheum.

Date: 2000

Volume: 43 Number: 11 Pages: 2578-2582

CODEN: ARHEAW

ISSN: 0004-3591

Language: English

Publisher: Lippincott Williams & Wilkins

2/3,K/13 (Item 11 from file: 399) Links

Fulltext available through: STIC Full Text Retrieval Options

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130324256

CA: 130(24)324256x

JOURNAL

CpG motif-containing DNA fragments from serums of patients with systemic lupus erythematosus proliferate mononuclear cells in vitro

Author: Sato, Yoshihiro; Miyata, Masayuki; Sato, Yukio; Nishimaki, Tomoe; Kochi,

Hideo; Kasukawa, Reiji

Location: Fukushima Medical University School of Medicine, Fukushima, Japan,

Journal: J. Rheumatol.

Date: 1999

Volume: 26 Number: 2 Pages: 294-301

CODEN: JRHUA9

ISSN: 0315-162X

Language: English

Publisher: Journal of Rheumatology Publishing Co. Ltd.

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2/3,K/14 (Item 1 from file: 99) Links
 Fulltext available through: STIC Full Text Retrieval Options
 Wilson Appl. Sci & Tech Abs
 (c) 2009 The HW Wilson Co. All rights reserved.
 1355330 H.W. Wilson Record Number: BAST96049849
 Immunostimulatory DNA sequences necessary for effective intradermal gene
 immunization

Sato, Yukio ; Roman, Mark; Tighe, Helen
 Science v. 273 (July 19 '96) p. 352-4
 Document Type: Feature Article ISSN: 0036-8075
 Sato, Yukio

Abstract: ...the immunogenicity of plasmid DNA (pDNA) requires short
 immunostimulatory DNA sequences (ISS) that contain a CpG dinucleotide in a
 particular base context. Human monocytes transfected with pDNA or double-stranded
 oligonucleotides...

Descriptors:

? e au=kobayashi, h?

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deoxyguaninecpg.txt

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E43	10	AU=KOBAYASHI, HIEKARI

deoxyguaninecpg.txt

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E47 2 AU=KOBAYASHI, HILARIO HARUOMI
E48 4 AU=KOBAYASHI, HIRAKAZU
E49 1 AU=KOBAYASHI, HIRAO
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? page

Ref	Items	Index-term
E1	1	AU=KOBAYASHI, HIRASHI
E2	4	AU=KOBAYASHI, HIRO
E3	1	AU=KOBAYASHI, HIRO YUII
E4	1	AU=KOBAYASHI, HIRO-O
E5	690	AU=KOBAYASHI, HIROAKI
E6	3	AU=KOBAYASHI, HIROAKI.
E7	1	AU=KOBAYASHI, HIROAKZU
E8	4	AU=KOBAYASHI, HIROBUMI
E9	1	AU=KOBAYASHI, HIROCHI
E10	44	AU=KOBAYASHI, HIROE
E11	1	AU=KOBAYASHI, HIROE.
E12	123	AU=KOBAYASHI, HIROFUMI
E13	1	AU=KOBAYASHI, HIROHARU
E14	23	AU=KOBAYASHI, HIROHIDE
E15	38	AU=KOBAYASHI, HIROHIKO
E16	11	AU=KOBAYASHI, HIROHISA
E17	23	AU=KOBAYASHI, HIROHITO
E18	1	AU=KOBAYASHI, HIROHUMI
E19	13	AU=KOBAYASHI, HIROICHI
E20	11	AU=KOBAYASHI, HIROITSU
E21	8	AU=KOBAYASHI, HIROJI
E22	2	AU=KOBAYASHI, HIROKATA
E23	13	AU=KOBAYASHI, HIROKATSU
E24	499	AU=KOBAYASHI, HIROKAZU
E25	282	AU=KOBAYASHI, HIROKI

Enter PAGE for more

? s e25

S3 282 AU='KOBAYASHI, HIROKI'

? s s3

S4 282 S S3

? s s4 and Cpg

	282	S4
	127009	CPG
S5	0	S S4 AND CPG

? s s4 and Cpg

	282	S4
	127009	CPG
S6	0	S S4 AND CPG

? s s4 and guanine

	282	S4
	389311	GUANINE
S7	0	S S4 AND GUANINE

? s 6-O-methyl-2'-deoxyguanine

>>>W: Warning: unmatched quote found
 S8 0 S 6-O-METHYL-2'-DEOXYGUANINE

deoxyguaninecpg.txt

```
?
? s CpG and 6-O-methyl-2'-deoxyguanine
>>>w: warning: unmatched quote found
127009 CPG
S9 0 6-O-METHYL-2'-DEOXYGUANINE
0 S CPG AND 6-O-METHYL-2'-DEOXYGUANINE

?
? s 6-O-methyl-2'-deoxyguanosine
>>>w: warning: unmatched quote found
S10 0 S 6-O-METHYL-2'-DEOXYGUANOSINE

?
? s CpG and o-methyl(w)guanosine
127009 CPG
457 O-METHYL
242489 GUANOSINE
0 O-METHYL(w)GUANOSINE
S11 0 S CPG AND O-METHYL(w)GUANOSINE

? s o-methyl(w) guanosine
457 O-METHYL
242489 GUANOSINE
S12 0 S O-METHYL(w) GUANOSINE

? s Cpg and deoxyguanosine
127009 CPG
61145 DEOXYGUANOSINE
S13 750 S CPG AND DEOXYGUANOSINE

? s s13 and methyl
750 S13
9713682 METHYL
S14 115 S S13 AND METHYL

? rd
>>>w: Duplicate detection is not supported for File 393.
Duplicate detection is not supported for File 391.
Records from unsupported files will be retained in the RD set.
S15 60 RD (UNIQUE ITEMS)

? d s
Set Items Description
S1 693 AU='SATO, YUKIO' FROM 5, 6, 24, 34, 40, 41, 45, 50, 65, 71, 72, 73,
76, 98, 103, 136, 143, 144, 154, 155, 156, 162, 172, 305, 369, 370, 393, 399, 434,
28, 35, 44, 91, 110, 135, 164, 185, 357, 391, 467, 8, 99, 266, 315, 358, 138, 149,
159, 444, 2, 32, 33, 302, 317, 354
S2 14 S S1 AND CPG
S3 282 AU='KOBAYASHI, HIROKI' FROM 5, 6, 24, 34, 40, 41, 45, 50, 65, 71,
72, 73, 76, 98, 103, 136, 143, 144, 154, 155, 156, 162, 172, 305, 369, 370, 393,
399, 434, 28, 35, 44, 91, 110, 135, 164, 185, 357, 391, 467, 8, 99, 266, 315, 358,
138, 149, 159, 444, 2, 32, 33, 302, 317, 354
S4 282 S S3
S5 0 S S4 AND CPG
S6 0 S S4 AND CPG
S7 0 S S4 AND GUANINE
S8 0 S 6-O-METHYL-2'-DEOXYGUANINE
S9 0 S CPG AND 6-O-METHYL-2'-DEOXYGUANINE
S10 0 S 6-O-METHYL-2'-DEOXYGUANOSINE
S11 0 S CPG AND O-METHYL(w)GUANOSINE
S12 0 S O-METHYL(w) GUANOSINE
S13 750 S CPG AND DEOXYGUANOSINE
S14 115 S S13 AND METHYL
```

deoxyguaninecpg.txt
S15 60 RD (unique items)

? t s15/3,k/1-20

>>w: KWIC option is not available in file(s): 399

15/3,k/1 (Item 1 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

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19065676 Biosis No.: 200600411071

Impact of benzo[a] pyrene-2 '-deoxyguanosine lesions on methylation of DNA by SssI and HhaI DNA methyltransferases

Author: Subach Oksana M; Baskunov Vladimir B; Darii Maria V; Maltseva Diana V; Alexandrov Dmitrii A; Kirsanova Olga V; Kolbanovskiy Alexander; Kolbanovskiy Marina; Johnson Francis; Bonala Radha; Geacintov Nicholas E; Gromova Elizaveta S (Reprint)
Author Address: Moscow MV Lomonosov State Univ, Dept Chem, Moscow 119992, Russia**Russia

Author E-mail Address: gromova@genebee.msu.ru

Journal: Biochemistry 45 (19): p 6142-6159 MAY 16 2006 2006

ISSN: 0006-2960

Document Type: Article

Record Type: Abstract

Language: English

Impact of benzo[a] pyrene-2 '-deoxyguanosine lesions on methylation of DNA by SssI and HhaI DNA methyltransferases

Abstract: ...9S, 10R-epoxide (B[a]PDE), a metabolite of benzo[a] pyrene, to guanine in CpG dinucleotide sequences could affect DNA methylation and, thus, represent a potential epigenetic mechanism of chemical... ..C) under bar pG and G (C) under bar GC sequences, respectively, and transfer a methyl group to the C5 atom of cytosine (C). A series of 18-mer unmethylated or... ..trans-anti-B[a] P-N-2-dG lesion flanking a target dC in the CpG dinucleotide sequence on its 5 '- side has a greater adverse impact on methylation than the...

DESCRIPTORS:

Chemicals & Biochemicals: ...benzo{a}pyrene-2-deoxyguanosine;

15/3,k/2 (Item 2 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

Biosis Previews(R)

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18926860 Biosis No.: 200600272255

Stereospecific formation of interstrand carbinolamine DNA cross-links by crotonaldehyde- and acetaldehyde-derived alpha-CH3-gamma-OH-1,N-2-propano-2 '-deoxyguanosine adducts in the 5 '-CpG-3 ' sequence

Author: Cho Young-Jin; Wang Hao; Kozekov Ivan D; Kurtz Andrew J; Jacob Jaison; Voehler Markus; Smith Jarrod; Harris Thomas M; Lloyd R Stephen; Rizzo Carmelo J; Stone Michael P (Reprint)
Author Address: Vanderbilt Univ, Vanderbilt Ingram Canc Ctr, Ctr Mol Toxicol, Dept Chem, 221 Kirkland Hall, Nashville, TN 37235 USA**USA
Author E-mail Address: michael.p.stone@vanderbilt.edu

Journal: Chemical Research in Toxicology 19 (2): p 195-208 FEB 2006 2006

ISSN: 0893-228X

Document Type: Article

Record Type: Abstract

Language: English

...links by crotonaldehyde- and acetaldehyde-derived alpha-CH3-gamma-OH-1,N-2-propano-2 '-deoxyguanosine adducts in the 5 '-CpG-3 ' sequence

deoxyguaninecpG.txt

Abstract: ...CH₃-gamma-C-13-OH-PdG adducts to the corresponding N-2-(3-oxo-1-methyl-propyl)-dG aldehydes was observed at temperatures below the T-m of the duplexes. These... ..differing orientations of the R- and S-CH₃ groups. Modeling also predicted that the alpha-methyl group of the aldehyde arising from the R-alpha-CH₃-gamma-OH-PdG adduct is... ..in the 3'-direction in the minor groove, facilitating cross-linking. In contrast, the alpha-methyl group of the aldehyde arising from the S-alpha-CH₃-gamma-OH-PdG adduct is...

15/3,K/3 (Item 3 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

Biosis Previews(R)

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18092216 Biosis No.: 200400473445

C-class CpG ODN: sequence requirements and characterization of immunostimulatory activities on mRNA level

Author: Jurk Marion (Reprint); Schulte Bettina; Kritzler Andrea; Noll Bernhard; Uhlmann Eugen; Wader Tanja; Schetter Christian; Krieg Arthur M; Vollmer Joerg
Author Address: Coley Pharmaceut GMBH, Elisabeth Selbert Str 9, D-40764, Langenfeld, Germany**Germany

Author E-mail Address: mjurk@coleypharma.com

Journal: Immunobiology 209 (1-2): p 141-154 2004 2004

Medium: print

ISSN: 0171-2985

Document Type: Article

Record Type: Abstract

Language: English

C-class CpG ODN: sequence requirements and characterization of immunostimulatory activities on mRNA level

Abstract: Synthetic oligodeoxynucleotides (ODN) containing unmethylated deoxycytosine-deoxyguanosine (CpG) motifs are very potent inducers of the innate immune system, mimicking the effects of bacterial DNA. CpG ODN are recognized by Toll-like receptor 9 (TLR9). Three classes of TLR9 agonists have been described: B-Class CpG ODN that induce strong B- and NK-cell activation and A-Class ODN that induce... ..ODN regarding optimal IFN-alpha secretion. Sequence as well as backbone modifications like 2'-O-methyl modifications especially in the 5' part of the ODN influence IFN-alpha-producing capacity. Kinetic... ..can be availed to induce potent anti-tumor or anti-viral effects. Consequently, C-Class CpG ODN represent ideal drug candidates for anti-viral and/or anti-tumor therapy. Copyright 2004...

DESCRIPTORS:

Chemicals & Biochemicals: 2'-O-methyl;deoxycytosine-deoxyguanosine;

15/3,K/4 (Item 4 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

Biosis Previews(R)

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17396561 Biosis No.: 200300355280

Formation of DNA adducts and induction of lacI mutations in big blue rat-2 cells treated with temozolomide: Implications for the treatment of low-grade adult and pediatric brain tumors.

Author: Bodell William J (Reprint); Gaikwad Nilesh W; Miller Douglas; Berger Mitchell S

Author Address: University of California, Box 0555, San Francisco, CA, 94143-0555, USA**USA

Author E-mail Address: bodell@itsa.ucsf.edu

Journal: Cancer Epidemiology Biomarkers and Prevention 12 (6): p 545-551 June 2003 2003

Medium: print

ISSN: 1055-9965 _(ISSN print)
Document Type: Article
Record Type: Abstract
Language: English

Abstract: ...lacI mutants from the TMZ treatment group demonstrated that they were GCWdarWAT transitions at non-CpG sites, which is significantly different from the mutation spectrum observed in the control treatment group...

DESCRIPTORS:

Chemicals & Biochemicals: ...6-omega-methyl-2-deoxyguanosine;

15/3,K/5 (Item 5 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

Biosis Previews(R)

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17178319 Biosis No.: 200300137038

Repair of the mutagenic DNA oxidation product, 5-formyluracil.

Author: Liu Pingfang; Burdzy Artur; Sowers Lawrence C (Reprint)

Author Address: Department of Biochemistry and Microbiology, School of Medicine, Loma Linda University, Loma Linda, CA, 92350, USA**USA

Author E-mail Address: lsowers@som.llu.edu

Journal: DNA Repair 2 (2): p 199-210 3 February, 2003 2003

Medium: print

ISSN: 1568-7864 _(ISSN print)

Document Type: Article

Record Type: Abstract

Language: English

Abstract: The oxidation of the thymine methyl group can generate 5-formyluracil (Fou). Template Fou residues are known to miscode, generating base... ..Mug), thermophile mismatch thymine DNA glycosylase (Tdg), mouse mismatch thymine DNA glycosylase (mTDG) and human methyl-CpG-binding thymine DNA glycosylase (MBD4), whereas the Fou:A lesion is repaired only by Mug...

Registry Numbers: ...2'-deoxyguanosine 5'-monophosphate

Enzyme Commission Number:

DESCRIPTORS:

Chemicals & Biochemicals: ...methyl-CpG-binding thymine DNA glycosylase...
...2'-deoxyguanosine 5'-monophosphate

15/3,K/6 (Item 6 from file: 5) Links

Fulltext available through: STIC Full Text Retrieval Options

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13365119 Biosis No.: 199698832952

Site-specific frame-shift mutagenesis by the 1-nitropyrene-DNA adduct

N-(deoxyguanosin-8-yl)-1-aminopyrene located in the (CG)-3 sequence: Effects of SOS, proofreading, and mismatch repair

Author: Malia Sharon A; Vyas Rajeev R; Basu Ashis K (Reprint)

Author Address: Dep. Chem., Univ. Connecticut, Storrs, CT 06269, USA**USA

Journal: Biochemistry 35 (14): p 4568-4577 1996 1996

ISSN: 0006-2960

Document Type: Article

Record Type: Abstract

Language: English

Abstract: ...dG-AP), both in vitro and in vivo. In Salmonella typhimurium 1-NP induces a CpG deletion in a CGCGCGCG sequence. In Escherichia coli, however, mostly -1 and +1 frame-shifts... ..GG sequences. In order to determine the mechanism of mutagenesis by dG-AP in a CpG repetitive sequence, we constructed a single-stranded

deoxyguaninecpg.txt
 M13 genome containing the adduct at the underscored deoxyguanosine of an inserted CGCGCG sequence. In *E. coli* strains with normal repair capability the adduct induced approximately 2% CpG deletions, which was 20-fold that of the control. With SOS, the frequency of frame-shift mutations increased to 2.6%, even though the frequency of CpG deletion accompanied 50% reduction. The enhancement in mutagenesis was due to a +1 frame-shift that occurred at a high frequency. In strains with a defect in methyl-directed mismatch repair, 50-70% increase in mutation frequency was observed. When these strains were... cells. We conclude that dG-AP induces both -2 and +1 frame-shifts in a CpG repetitive sequence and that these two mutagenic events are competing pathways. The CpG deletion does not require SOS functions, whereas the +1 frame-shifts are SOS-dependent. On... exonuclease of the DNA polymerase. Misaligned structures that escape the exonuclease are repaired by the methyl-directed mismatch repair, albeit with limited efficiency.

15/3,K/7 (Item 7 from file: 5) Links
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 12863157 Biosis No.: 199598330990
 DNA adduct 8-hydroxyl-2'-deoxyguanosine (8-hydroxyguanine) affects function of human DNA methyltransferase

Author: Turk Patrick W; Laayoun Ali; Smith Steven S; Weitzman Sigmund A (Reprint)
 Author Address: Div. Hematol./Oncol., Dep. Med. Robert Lurie Cancer Center, Northwestern Univ. Med. Sch., 303 East Chicago Ave., Chicago, IL 60611, USA**USA
 Journal: Carcinogenesis (Oxford) 16 (5) : p 1253-1255 1995 1995
 ISSN: 0143-3334
 Document Type: Article
 Record Type: Abstract
 Language: English
 DNA adduct 8-hydroxyl-2'-deoxyguanosine (8-hydroxyguanine) affects function of human DNA methyltransferase

Abstract: 8-Hydroxyl-2'-deoxyguanosine (also referred to as 8-hydroxyguanine (8-OH-dG) or 7,8-dihydro-8-oxoguanine... of nearby cytosine moieties by the human DNA methyltransferase. The exact position of 8-OH-deoxyguanosine relative to a CpG dinucleotide appears important to this effect. Our data indicate that 8-OH-deoxyguanosine diminishes the ability of the methyltransferase to methylate a target cytosine when the 8-OH-deoxyguanosine is one or two nucleotides 3' from the cytosine, on the same strand. On the other hand 8-OH-deoxyguanosine does not diminish the ability of the enzyme to respond to a methyl director (5-methylcytosine) when the 8-OH-deoxyguanosine is on the same strand but one or two nucleotides 3' from the methyl director. Differences in methylation rates as great as 13-fold have been detected using various...

15/3,K/8 (Item 8 from file: 5) Links
 Fulltext available through: STIC Full Text Retrieval Options
 Biosis Previews(R)
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 07342747 Biosis No.: 198478078154
 VISUALIZATION OF DRUG NUCLEIC-ACID INTERACTIONS AT ATOMIC RESOLUTION 10. STRUCTURE OF A N N DI METHYL PROFLAVINE DEOXYCYTIDYL-3'-5'-DEOXY GUANOSINE CRYSTALLINE COMPLEX

Author: SAKORE T D (Reprint); BHANDARY K K; SOBELL H M
 Author Address: DEP RADIATION BIOL BIOPHYSICS, UNIV ROCHESTER SCH MED DENTISTRY, ROCHESTER, NY 14642, USA**USA
 Journal: Journal of Biomolecular Structure and Dynamics 1 (5) : p 1219-1228 1984
 ISSN: 0739-1102
 Document Type: Article

Record Type: Abstract

Language: ENGLISH

...OF DRUG NUCLEIC-ACID INTERACTIONS AT ATOMIC RESOLUTION 10. STRUCTURE OF A N N DI
METHYL PROFLAVINE DEOXYCYTIDYL-3'-5'-DEOXY GUANOSINE CRYSTALLINE COMPLEX

Abstract: N,N-dimethylproflavine forms a crystalline complex with deoxycytidylyl(3'-5')deoxyguanosine (d-CpG), space group P21212, with a = 21.37 .ANG., b = 34.05 .ANG. and c = 13... ..on 2032 observed reflections. The structure consists of 2 N,N-dimethylproflavine molecules, 2 d-CpG molecules and 16 H2O molecules (a total of 128 nonhydrogen atom). As with other structures of this type, N,N-dimethylproflavine molecules intercalate between base-paired d-CpG dimers. dimethylproflavine molecules stack on either side of the intercalated duplex, being related by a...

15/3,K/9 (Item 1 from file: 24) Links

Fulltext available through: STIC Full Text Retrieval Options

CSA Life Sciences Abstracts

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0002959772 IP Accession No: 7156863

Impact of Benzo[a]pyrene-2'-deoxyguanosine Lesions On Methylation of DNA by SssI and HhaI DNA Methyltransferases

Subach, OM; Baskunov, VB; Darii, MV; Maltseva, DV; Alexandrov, DA; Kirsanova, OV; Kolbanovskiy, A; Kolbanovskiy, M; Johnson, F; Bonala, R; Geacintov, NE; Gromova, ES
Chemistry Department, Moscow State University, Moscow, 119992, Russia
Biochemistry (Washington), v 45, n 19, p 6142-6159, May 16, 2006
Publication Date: 2006

Document Type: Journal Article

Record Type: Abstract

Language: English

Summary Language: English

ISSN: 0006-2960

File Segment: Toxicology Abstracts; Nucleic Acids Abstracts

Impact of Benzo[a]pyrene-2'-deoxyguanosine Lesions On Methylation of DNA by SssI and HhaI DNA Methyltransferases

Abstract:

...9S,10R-epoxide (B[a]PDE), a metabolite of bezo[a] pyrene, to guanine in CpG dinucleotide sequences could affect DNA methylation and, thus, represent a potential epigenetic mechanism of chemical... ..DNA methylation by prokaryotic DNA methyltransferases M.SssI and M.HhaI. These two methyltransferases recognize CpG and GCGC sequences, respectively, and transfer a methyl group to the C5 atom of cytosine (C). A series of 18-mer unmethylated or... ..anti-B[a]P-N super(2)-dG lesion flanking a target dC in the CpG dinucleotide sequence on its 5'-side has a greater adverse impact on methylation than the...

Descriptors: Adducts; Carcinogenesis; Conformation; CpG islands; Cytosine; DNA damage; DNA methylation; DNA methyltransferase; Guanine; Metabolites; Methyltransferase; Oligonucleotides; Pyrene; epigenetics
Identifiers:

15/3,K/10 (Item 2 from file: 24) Links

Fulltext available through: STIC Full Text Retrieval Options

CSA Life Sciences Abstracts

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0002847671 IP Accession No: 6800887

Stereospecific Formation of Interstrand Carbinolamine DNA Cross-Links by Crotonaldehyde- and Acetaldehyde-Derived alpha -CH sub(3)- gamma -OH-1,N
Page 16

deoxyguaninecpq.txt
super(2)-Propano-2'-deoxyguanosine Adducts in the 5'-CpG-3' Sequence

Cho, Y-J; Wang, H; Kozekov, ID; Kurtz, AJ; Jacob, J; Voehler, M; Smith, J; Harris, TM; Lloyd, RS; Rizzo, CJ; Stone, MP Department of Chemistry, Center in Molecular Toxicology, Vanderbilt-Ingram Cancer Center, Vanderbilt University, Nashville, Tennessee 37235, USA
Chemical Research in Toxicology, v 19, n 2, p 195-208, February 20, 2006
Publication Date: 2006

Document Type: Journal Article
Record Type: Abstract
Language: English
Summary Language: English
ISSN: 0893-228X
File Segment: Toxicology Abstracts
...and Acetaldehyde-Derived alpha -CH sub(3)- gamma -OH-1,N
super(2)-Propano-2'-deoxyguanosine Adducts in the 5'-CpG-3' Sequence

Abstract:
...when annealed into 5'-d (GCTAGCXAGTCC)-3' times 5'-d(GGACTCYCTAGC)-3' containing the 5'-CpG-3' sequence context (X = R- or S- alpha -CH sub(3)- gamma - super(13)C...
...super(13)C-OH-PdG adducts to the corresponding N super(2)-(3-oxo-1-methyl-propyl)-dG aldehydes was observed at temperatures below the T sub(m) of the duplexes... ..of the R- and S-CH sub(3) groups. Modeling also predicted that the alpha -methyl group of the aldehyde arising from the R- alpha -CH sub(3)- gamma -OH-PdG... ..in the 3'-direction in the minor groove, facilitating cross-linking. In contrast, the alpha -methyl group of the aldehyde arising from the S- alpha -CH sub(3)- gamma -OH-PdG...

15/3,K/11 (Item 3 from file: 24) Links
Fulltext available through: STIC Full Text Retrieval Options
CSA Life Sciences Abstracts
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0001610614 IP Accession No: 3903892
Site-specific frame-shift mutagenesis by 1-nitropyrene - DNA adduct N-(deoxyguanosin-8-yl)-1-aminopyrene located in the (CG) sub(3) sequence: Effects of SOS, proofreading, and mismatch repair

Malia, SA; Vyas, RR; Basu, AK* Dep. Chem., Univ. Connecticut, Storrs, CT 06269, USA
Biochemistry (Washington), v 35, n 14, p 4568-4577, 1996
Addl. Source Info: Biochemistry (Washington) [BIOCHEMISTRY (WASH.)], vol. 35, no. 14, pp. 4568-4577, 1996
Publication Date: 1996

Document Type: Journal Article
Record Type: Abstract
Language: English
Summary Language: English
ISSN: 0006-2960
File Segment: Nucleic Acids Abstracts; Bacteriology Abstracts (Microbiology B)

Abstract:
...super(AP)), both in vitro and in vivo. In Salmonella typhimurium 1-NP induces a CpG deletion in a CGCGCGG sequence. In Escherichia coli, however, mostly -1 and +1 frame-shifts... ..sequences. In order to determine the mechanism of mutagenesis by dG super(AP) in a CpG repetitive sequence, we constructed a single-stranded M13 genome containing the adduct at the underscoring deoxyguanosine of an inserted CGCGG sequence. In E. coli strains with normal repair capability the adduct induced approximately 2% CpG deletions, which was 20-fold that of the control. With SOS, the frequency of frame-shift mutations increased to 2.6%, even though the frequency of

deoxyguanincpg.txt

CpG deletion accompanied 50% reduction. The enhancement in mutagenesis was due to a +1 frame-shift that occurred at a high frequency. In strains with a defect in methyl-directed mismatch repair, 50-70% increase in mutation frequency was observed. When these strains were... We conclude that dG super(AP) induces both -2 and +1 frame-shifts in a CpG repetitive sequence and that these two mutagenic events are competing pathways. The CpG deletion does not require SOS functions, whereas the +1 frame-shifts are SOS-dependent. On... exonuclease of the DNA polymerase. Misaligned structures that escape the exonuclease are repaired by the methyl-directed mismatch repair, albeit with limited efficiency.

15/3/K/12 (Item 1 from file: 34) Links

Fulltext available through: STIC Full Text Retrieval Options

SciSearch(R) Cited Ref Sci

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15457999 Genuine Article#: 075LS No. References: 52

Orientation of the crotonaldehyde-derived N-2-[3-oxo-1(S)-methyl -propyl]-dGdNA adduct hinders interstrand cross-link formation in the 5' - CpG-3' sequence

Author: Cho YJ; Wang H; Kozekov ID; Kozekova A; Kurtz AJ; Jacob J; Voehler M; Smith J; Harris TM; Rizzo CJ; Lloyd RS; Stone MP (REPRINT)
Corporate Source: Vanderbilt Univ, Dept Chem, Ctr Mol Toxicol, Vanderbilt Ingram Canc Ctr, 221 Kirkland Hall/Nashville/TN/37235 (REPRINT); Vanderbilt Univ, Dept Chem, Ctr Mol Toxicol, Vanderbilt Ingram Canc Ctr, Nashville/TN/37235; Univ Texas, Med Branch, Dept Human Biol Chem & Genet, Galveston/TX/77555; Oregon Hlth Sci Univ, Ctr Res Occupat & Environ Toxicol, Portland/OR/97239 (michael.p.stone@vanderbilt.edu)
Journal: CHEMICAL RESEARCH IN TOXICOLOGY, 2006, V 19, N8 (AUG 21), P 1019-1029

ISSN: 0893-228X Publication date: 20060821

Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036 USA

Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

Orientation of the crotonaldehyde-derived N-2-[3-oxo-1(S)-methyl -propyl]-dGdNA adduct hinders interstrand cross-link formation in the 5' - CpG-3' sequence

Abstract: The conformation of the crotonaldehyde-derived N-2-[3-oxo-1(S)-methyl-propyl]-dG adduct in the oligodeoxynucleotide 5'-d(G(1)C(2)T(3)A... (A(22)G(23)C(24))-3', where X = N-2-[3-oxo-1(S)-methyl -propyl]-dG, is reported. This adduct arises from opening of the cyclic N-2-(S... 2')-dG adduct when placed opposite dC in duplex DNA. This oligodeoxynucleotide contains the 5'-CpG-3' sequence in which the N-2-(R-alpha-CH3-gamma-OH-1, N-2... times of these protons were similar to those of the overall duplex. The crotonaldehydic-derived methyl protons showed NOEs in the 5'-direction to C-18 H1', G(19) H1', and... that within the minor groove, the aldehyde of the N-2-[3-oxo-1(S)-methyl-propyl]-dG adduct oriented in the 3'-direction, while the 1(C) S methyl group oriented in the 5'-direction. This positioned the aldehyde distal to the G(19...
Identifiers-- ...DNA ADDUCT; 1,N-2-PROPANODEOXYGUANOSINE ADDUCTS; DEOXYGUANOSINE ADDUCT; NMR-SPECTROSCOPY; H-1-NMR SPECTRA; SHUTTLE VECTOR; SCHIFF-BASE; HUMAN-CELLS; ACROLEIN; OLIGONUCLEOTIDES

15/3/K/13 (Item 2 from file: 34) Links

Fulltext available through: STIC Full Text Retrieval Options

SciSearch(R) Cited Ref Sci

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13649085 Genuine Article#: 900AM No. References: 68

Methylation of cytosine at C5 in a CpG sequence context causes a conformational switch of a benzo[a]pyrene diol epoxide-N-2-guanine adduct in DNA from a minor groove alignment to intercalation with base displacement

Author: Zhang N; Lin C; Huang XW; Kolbanovskiy A; Hingerty BE; Amin S; Broyde S; Geacintov NE; Patel DJ (REPRINT)
Corporate Source: Mem Sloan Kettering Canc Ctr, Program Cellular Biochem & Page 18

deoxyguaninecpg.txt
 Biophys,1275 York Ave/New York//NY/10021 (REPRINT); Mem Sloan Kettering Canc
 Ctr,Program Cellular Biochem & Biophys,New York//NY/10021; NYU,Dept Chem,New
 York//NY/10003; Oak Ridge Natl Lab,Div Life Sci,Oak Ridge/TN/37831; Penn State Coll
 Med,Dept Pharmacol,Hershey//PA/17033; NYU,Dept Biol,New York//NY/10003 (
 pateld@mskcc.org)
 Journal: JOURNAL OF MOLECULAR BIOLOGY , 2005 , V 346 , N4 (MAR 4) , P 951-965
 ISSN: 0022-2836 Publication date: 20050304
 Publisher: ACADEMIC PRESS LTD ELSEVIER SCIENCE LTD , 24-28 OVAL RD, LONDON NW1 7DX,
 ENGLAND
 Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)
 Methylation of cytosine at C5 in a CpG sequence context causes a conformational
 switch of a benzo[a]pyrene diol epoxide-N-2...

Abstract: It is well known that CpG dinucleotide steps in DNA, which are highly
 methylated at the 5-position of cytosine (mec... ..with anti-B[a]PDE (a metabolite
 of the environmental carcinogen benzo[a]pyrene) at CpG mutation hot spots is
 enhanced by the methylation of the cytosine residue flanking the target... ..BP]G
 sequence contexts. This remarkable conformational switch resulting from the presence
 of a single methyl group at the 5-position of the cytosine residue flanking the
 lesion on the 5'-side, is attributed to the hydrophobic effect of the methyl group
 that can stabilize intercalated adduct conformations in an adduct
 stereochemistry-dependent manner. Such conformational differences in methylated and
 unmethylated CpG sequences may be significant because of potential alterations in
 the cellular processing of the [BP...
 Identifiers-- ...SPECTRUM; DIASTEREOMERIC BENZO<A>PYRENE 7,8-DIOL-9,10-EPOXIDES;
 EPOXIDE-GUANINE ADDUCTS; MODIFIED DEOXYGUANOSINE; OPTICAL ENANTIOMERS; LUNG-CANCER;
 HOT-SPOTS; COMPLEX-FORMATION; ESCHERICHIA-COLI

15/3,K/14 (Item 3 from file: 34) Links
 Fulltext available through: STIC Full Text Retrieval Options
 SciSearch(R) Cited Ref Sci
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 10508659 Genuine Article#: 536AR No. References: 45
 Conformational changes of a benzo[a]pyrene diol epoxide-N-2-dG adduct induced by a 5
 '-flanking 5-methyl-substituted cytosine in a (Me)CG double-stranded oligonucleotide
 sequence context

Author: Huang XW; Colgate KC; Kolbanovskiy A; Amin S; Geacintov NE (REPRINT)
 Corporate Source: NYU,Dept Chem,31 Washington Pl/New York//NY/10003 (REPRINT);
 NYU,Dept Chem,New York//NY/10003; Amer Hlth Fdn,Valhalla//NY/10595
 Journal: CHEMICAL RESEARCH IN TOXICOLOGY , 2002 , V 15 , N3 (MAR) , P 438-444
 ISSN: 0893-228X Publication date: 20020300
 Publisher: AMER CHEMICAL SOC , 1155 16TH ST, NW, WASHINGTON, DC 20036 USA
 Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)
 ...benzo[a]pyrene diol epoxide-N-2-dG adduct induced by a 5 '-flanking 5-
 methyl-substituted cytosine in a (Me)CG double-stranded oligonucleotide sequence
 context

Abstract: ...number of mutations are found in certain codons of the p,53 gene,
 mostly at CpG dinucleotide sequences, which are highly methylated in human tissues.
 The reactivities of the mutagenic metabolite... ..g., trans-anti-BPDE-N-2-dG, or
 G*), are enhanced when the cytosine in CpG sequences in DNA is methylated at its
 5-position ((Me) CpG). However, methylation may also affect the characteristics of
 these adducts, and we have therefore investigated whether adduct conformations are
 different in double-stranded DNA in methylated (Me) CpG* and in unmethylated CpG*
 sequence contexts in the oligonucleotide model system duplex
 5'-d(CCAT[C-5X]G*CTACC... ..conformational change from a minor groove structure
 external to the DNA duplex in the unmethylated CpG* sequence, to an intercalative
 conformation in the (Me)CG* sequence context. In contrast, the conformation ...
 ...groove type in both the methylated and unmethylated sequences. These results
 indicate that methylation of CpG sequences may affect not only chemical reactivities
 of chemically reactive intermediates with DNA, but also... ..formed. Thus, both

deoxyguaninecpg.txt

factors must be considered in evaluating the effects of cytosine methylation in CpG sequences on the biological consequences of the DNA adducts formed.
Identifiers-- ...CARCINOGEN-DNA ADDUCTS; OPTICAL ENANTIOMERS; MODIFIED DEOXYGUANOSINE; COVALENT ADDUCTS; HOT-SPOTS; P53 GENE; METHYLATION; BINDING; 7,8-DIOL-9,10-EPOXIDES; DUPLEX

15/3,K/15 (Item 4 from file: 34) Links

Fulltext available through: STIC Full Text Retrieval Options

SciSearch(R) Cited Ref Sci

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04746881 Genuine Article#: UE612 No. References: 73

SITE-SPECIFIC FRAME-SHIFT MUTAGENESIS BY THE 1-NITROPYRENE-DNA ADDUCT

N-(DEOXYGUANOSIN-8-YL)-1-AMINOPYRENE LOCATED IN THE (CG)(3) SEQUENCE - EFFECTS OF SOS, PROOFREADING, AND MISMATCH REPAIR

Author: MALIA SA; VYAS RR; BASU AK

Corporate Source: UNIV CONNECTICUT,DEPT CHEM,U-60/STORRS//CT/06269; UNIV

CONNECTICUT,DEPT CHEM/STORRS//CT/06269

Journal: BIOCHEMISTRY, 1996, V 35, N14 (APR 9), P 4568-4577

ISSN: 0006-2960

Language: ENGLISH Document Type: ARTICLE (Abstract Available)

Abstract: ...dG(AP)), both in vitro and in vivo. In *Salmonella typhimurium* 1-NP induces a CpG deletion in a CGCGCGCG sequence. In *Escherichia coli*, however, mostly -1 and +1 frame-shifts... ..GG sequences. In order to determine the mechanism of mutagenesis by dG(AP) in a CpG repetitive sequence, we constructed a single-stranded M13 genome containing the adduct at the underscoring deoxyguanosine of an inserted CGCGCG-sequence. In *E. coli* strains with normal repair capability the adduct induced approximately 2% CpG deletions, which was 20-fold that of the control. With SOS, the frequency of frame-shift mutations increased to 2.6%, even though the frequency of CpG deletion accompanied 50% reduction. The enhancement in mutagenesis was due to a +1 frame-shift that occurred at a high frequency. In strains with a defect in methyl-directed mismatch repair, 50-70% increase in mutation frequency was observed. When these strains were... ..cells. We conclude that dG(AP) induces both -2 and +1 frame-shifts in a CpG repetitive sequence and that these two mutagenic events are competing pathways. The CpG deletion does not require SOS functions, whereas the +1 frame-shifts are SOS-dependent. On... ..exonuclease of the DNA polymerase. Misaligned structures that escape the exonuclease are repaired by the methyl-directed mismatch repair, albeit with limited efficiency.
Identifiers--

15/3,K/16 (Item 5 from file: 34) Links

SciSearch(R) Cited Ref Sci

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01277714 Genuine Article#: GL696 No. References: 26

THE VSR GENE-PRODUCT OF *ESCHERICHIA-COLI* K-12 IS A STRAND-SPECIFIC AND SEQUENCE-SPECIFIC DNA MISMATCH ENDONUCLEASE

Author: HENNECKE F; KOLMAR H; BRUNDL K; FRITZ HJ

Corporate Source: UNIV GOTTINGEN,INST MOLEK GENET,GRISEBACHSTR 8/D-3400

GOTTINGEN//FED REP GER/

Journal: NATURE, 1991, V 353, N6346, P 776-778

Language: ENGLISH Document Type: ARTICLE (Abstract Available)

Abstract: ...NT(A)/(T)GG next to the underlined thymidine residue, which is mismatched to 2'-deoxyguanosine. The incision is mismatch-dependent and strand-specific. These results illustrate how Vsr endonuclease initiates...
Identifiers-- ...SHORT PATCH REPAIR; *ESCHERICHIA-COLI*; POLYMERASE-I; LAMBDA; 5-METHYL-CYTOSINE; RECOMBINATION; METHYLATION; GLYCOSYLASE; REPRESSOR; MECHANISM

Research Fronts: ...ORGANIZATION; AVIAN KERATIN GENES; HIGHLY REPETITIVE SEQUENCE) 89-2588 001 (SPONTANEOUS HA-RAS GENE ACTIVATION; CPG DINUCLEOTIDES; DNA URACIL REPAIR; BASE SUBSTITUTION MUTAGENESIS; REACTIVE SITE; *DROSOPHILA* CELLS) 89-7805 001 (PROTEIN...)

Cited References:

15/3,K/17 (Item 1 from file: 71) Links
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 0006634000 Supplier Number: 2006135394
 Impact of benzo[a]pyrene-2prime-deoxyguanosine lesions on methylation of DNA by SssI and HhaI DNA methyltransferases
 Subach O.M.; Baskunov V.B.; Darii M.V.; Maltseva D.V.; Alexandrov D.A.; Kirsanova O.V.; Kolbanovskiy A.; Kolbanovskiy M.; Johnson F.; Bonala R.; Geacintov N.E.; Gromova E.S.
 Author Email: gromova@genebee.msu.ru
 Corresp. Author/Affil: Gromova E.S., Chemistry Department, Moscow State University, Moscow, 119992, Russian Federation
 Corresp. Author Email: gromova@genebee.msu.ru
 Journal : Biochemistry (Biochemistry), v45, n19, (6142-6159) , 2006 , United States
 Publication Date: May 16, 2006 (20060516)
 Coden: BICHA
 ISSN: 0006-2960 eISSN: 1073-449X
 Record Type: Abstract; New
 Document Type: Article
 Languages: English Summary Languages: English
 No. of References: 85
 Impact of benzo[a]pyrene-2prime-deoxyguanosine lesions on methylation of DNA by SssI and HhaI DNA methyltransferases

...9S,10R-epoxide (B[a]PDE), a metabolite of benzo[a]pyrene, to guanine in CpG dinucleotide sequences could affect DNA methylation and, thus, represent a potential epigenetic mechanism of chemical... DNA methylation by prokaryotic DNA methyltransferases M.SssI and M.HhaI. These two methyltransferases recognize CpG and CGC sequences, respectively, and transfer a methyl group to the C5 atom of cytosine (C). A series of 18-mer unmethylated or... anti-B[a]P-N SUP 2 -dG lesion flanking a target dC in the CpG dinucleotide sequence on its 5prime-side has a greater adverse impact on methylation than the...

15/3,K/18 (Item 2 from file: 71) Links
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 0006557191 Supplier Number: 2006057158
 Stereospecific formation of interstrand carbinolamine DNA cross-links by crotonaldehyde- and acetaldehyde-derived alpha-CH SUB 3 -gamma-OH-1, N SUP 2 -propano-2prime-deoxyguanosine adducts in the 5prime-CpG -3prime sequence
 Cho Y.-J.; Wang H.; Kozekov I.D.; Kurtz A.J.; Jacob J.; Voehler M.; Smith J.; Harris T.M.; Lloyd R.S.; Rizzo C.J.; Stone M.P.
 Author Email: michael.p.stone@vanderbilt.edu
 Corresp. Author/Affil: Stone M.P., Department of Chemistry, Center in Molecular Toxicology, Vanderbilt University, Nashville, TN 37235 , United States
 Corresp. Author Email: michael.p.stone@vanderbilt.edu
 Journal : Chemical Research in Toxicology (Chem. Res. Toxicol.) , v19, n2, (195-208) , 2006 , United States
 Publication Date: February 1, 2006 (20060201)
 Coden: CRTOE
 ISSN: 0893-228X eISSN: 1097-0215
 Record Type: Abstract; New
 Document Type: Article
 Languages: English Summary Languages: English
 No. of References: 60
 ...and acetaldehyde-derived alpha-CH SUB 3 -gamma-OH-1, N SUP 2 -propano-2prime-deoxyguanosine adducts in the 5prime-CpG -3prime sequence

deoxyguaninecpg.txt
 ...KWKK. when annealed into 5prime-d(GCTAGCXAGTCC)-
 3prime.5prime-d(GGACTCYCTAGC)-3prime containing the 5prime-CpG -3prime sequence
 context (X = R- or S-alpha-CH SUB 3 -gamma- SUP 13 C... ..SUP 13 C-OH-PdG adducts
 to the corresponding N SUP 2 -(3-oxo-1- methyl-propyl)-dG aldehydes was observed at
 temperatures below the T SUB m of the duplexes... ..of the R- and S-CH SUB 3
 groups. Modeling also predicted that the alpha- methyl group of the aldehyde arising
 from the R-alpha-CH SUB 3 -gamma-OH-PdG... ..in the 3prime-direction in the minor
 groove, facilitating cross-linking. In contrast, the alpha-methyl group of the
 aldehyde arising from the S-alpha-CH SUB 3 -OH-PdG adduct...

15/3,K/19 (Item 3 from file: 71) Links

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0006110197 Supplier Number: 2005109885

Synthesis and properties of an acetaldehyde-derived oligonucleotide interstrand
 cross-link

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Journal : Chemical Research in Toxicology (Chem. Res. Toxicol.) , v18, n4,
 (711-721) , 2005 , United States

Publication Date: April 1, 2005 (20050401)

Coden: CRTOE

ISSN: 0893-228X eISSN: 1552-499X

Record Type: Abstract; New

Document Type: Article

Languages: English Summary Languages: English

No. of References: 45

...2-deoxyribos-1-yl)-5,6,7,8- tetrahydro-8-(N SUP 2 -deoxyguanosyl)-6-
 methyl-pyrimido[1,2-alpha]purine- 10(3H)one (7), have been previously characterized
 by our... ..with NaIO SUB 4 . The resulting oligonucleotide 11 containing the 1,N
 SUP 2 -propano-deoxyguanosine (dGuo) 5 was incubated with the complementary
 oligonucleotide 12 to give the desired cross-link... ..and enzymatic hydrolysis to
 cross-link 7. The formation of cross-link 13 at 5prime-CpG-3prime was confirmed by
 incubation of 11 with [SUP 15 N SUB 5] 12 containing... ..Only the
 oligonucleotide containing 5gamma-Cp5-3gamma formed the cross-link with the
 complementary 5gamma-CpG-3gamma sequence. The results of this study confirm the
 structure of an AA-derived DNA...

15/3,K/20 (Item 4 from file: 71) Links

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0001543484 Supplier Number: 1996069219

Site-specific frame-shift mutagenesis by the I-nitropyrene-DNA adduct N-
 (deoxyguanosin-8-yl)-1-aminopyrene located in the (CG) SUB 3 sequence: Effects of
 SOS, proofreading, and mismatch repair

Malia S.A.; Vyas R.R.; Basu A.K.

Corresp. Author/Affil: Basu A.K., Department of Chemistry, University of
 Connecticut, Storrs, CT 06269 , United States

Journal : Biochemistry (BIOCHEMISTRY) , v35, n14, (4568-4577) , 1996 , United
 States

Publication Date: April 25, 1996 (19960425)

Coden: BICHA

ISSN: 0006-2960 eISSN: 1471-2970

Record Type: Abstract; New

Document Type: Article

Languages: English Summary Languages: English

deoxyguaninecpG.txt

...dG(AP)), both in vitro and in vivo. In *Salmonella typhimurium* 1-NP induces a CpG deletion in a CGCGCGCG sequence. In *Escherichia coli*, however, mostly -1 and +1 frame-shifts... ..GG sequences. In order to determine the mechanism of mutagenesis by dG(AP) in a CpG repetitive sequence, we constructed a single-stranded M13 genome containing the adduct at the underscored deoxyguanosine of an inserted CGCGCG sequence. In *E. coli* strains with normal repair capability the adduct... ..the frequency of frame-shift mutations increased to 2.6%, even though the frequency of CpG deletion accompanied 50% reduction. The enhancement in mutagenesis was due to a +1 frame-shift that occurred at a high frequency. In strains with a defect in methyl-directed mismatch repair, 50-70% increase in mutation frequency was observed. when these strains were... ..cells. We conclude that dG(AP) induces both -2 and +1 frame-shifts in a CpG repetitive sequence and that these two mutagenic events are competing pathways. The CpG deletion does not require SOS functions, whereas the +1 frame-shifts are SOS-dependent. On... ..exonuclease of the DNA polymerase. Misaligned structures that escape the exonuclease are repaired by the methyl-directed mismatch repair, albeit with limited efficiency.